

Alabama Trawl Gear Characterization

Prepared by the Alabama Marine Resources Division (AMRD)

Otter Trawl

An otter trawl is a cone shaped net made of coated nylon mesh of various mesh sizes depending on the targeted species and anticipated catch. The opening of the trawl is suspended between two planers, called doors, which serve to spread the net open as it is towed along the water bottom. The bottoms of the doors are rounded along the leading edge with a metal runner protecting the door and providing weight. A series of floats runs the length of the top line, and weights (lead spaced along the line or loops of small chain) grace the bottom line. The gear terminates in a tail bag or 'cod', where the catch is concentrated and retained during the tow.

Gear Deployment

Trawls are deployed cod end first at a slow speed and mesh is fed out until fully expanded. Towlines are payed out until the doors contact the bottom and the lead line is skimming the bottom. The depth of deployment varies according to water depth and size and species targeted. Trawl times are unregulated but typically last 1 – 2 hours depending on season, bycatch issues, and debris. Trawls must comply with all federal Turtle Excluder Device (TED) regulations.

Target Species

In Alabama, trawls target primarily penaeid shrimp with incidental catch of various other fish and shellfish species. Marketable species such as crabs, sheepshead, flounders, southern kingfish, and sand seatrout are retained. A live bait trawl fishery exists for Atlantic croaker (*Micropogonias undulates*) and shrimp.

Licenses

Alabama commercial shrimp licenses vary in cost by vessel size (Table 7). The license sales reflect a general downward trend for all shrimp licenses. While extensive data exist for the commercial shrimp industry, no effort data is collected from the recreational sector; effort expended by the recreational sector varies widely but occurs mostly from June through October. With the exception of the opening of brown shrimp season, the majority of recreational activity is directed at obtaining bait for weekend fishing trips.

Table 7. All Shrimp Licenses Sold FY 1999 – 2004, by category.

Boat Size	1999	2000	2001	2002	2003	2004
< 30 ft	625	704	752	698	574	507
30 - 45 ft	186	181	178	155	143	137
> 45 ft	187	227	231	212	204	176
Total Resident						
Commercial	998	1112	1161	1065	921	820
Non-Resident			229	239	218	210

Commercial						
Resident Recreational	1738	1641	1711	1623	1350	1476
Non-Resident Recreational			102	112	94	83

Effort

Effort information is limited to licenses sold, percentage of licenses reporting landings, number of nets deployed, number of trips, and mean fishing time per trip. Precise geographical information is unavailable.

Beginning in 2001, foreign imports to the United States reduced the ex-vessel value of shrimp and placed a significant economic burden on the shrimp fishery. In a study of Texas shrimp fishermen, economic analysis showed that \$0.98 operational costs were expended for each \$1 earned. This distress was exacerbated by increased fuel cost, particularly in 2004. Numerous shrimp fishermen have left the industry completely or work only seasonally. Economics has also reduced the length of the shrimp season with vessels staying in port longer in the spring and returning earlier in the fall because of decreased economic viability in low abundance months.

Below is a review of trip tickets documenting the reduction in fleet size, trip frequency, and mean hours fished per trip (Table 8). From 2001 to 2004, a negative trend in inshore vessels reporting shrimp harvest occurred. The number of reported trips in Alabama waters during this time fell 31% and mean fishing time per trip was reduced 20%. This reduction was reflected in all months (Table 9).

Table 8. Number of Inshore Commercial Trawling Trips 2001-2004.

Year	Number of Individual Vessels Reporting	Total Number of Trips	Mean Fishing Time (hr)/ Trip
2001	342	4,519	28.7
2002	276	4,354	22.4
2003	247	4,024	22.5
2004	214	3,117	23.0

Table 9. Number of Vessels Harvesting Shrimp by Month 2001-2004.

Month	2001	2002	2003	2004
Jan	18	22	21	6
Feb	11	16	11	5
Mar	27	16	9	7
Apr	34	17	30	13
May	72	26	23	32

Jun	230	188	168	159
Jul	191	164	135	141
Aug	168	130	133	112
Sep	192	100	115	100
Oct	150	110	120	101
Nov	118	92	99	79
Dec	61	48	28	52

The frequency and duration of trips for inshore Alabama trawlers is listed below (Table 10). All months except May showed a reduction in trips reported. The mean annual fishing time for each trip was also reduced. Reviewed on a monthly basis, this data showed the greatest monthly variation. Trip times in October, November, December and January increased while spring and summer trip times were reduced.

Table 10. Monthly Trip Totals and Mean Hours Fished/Trip for Commercial Shrimpers in Alabama waters 2001-2004.

2001			2002		2003		2004	
Month	Trips	Mean Fishing Time (hr)/ Trip	Trips	Mean Fishing Time (hr)/ Trip	Trips	Mean Fishing Time (hr)/ Trip	Trips	Mean Fishing Time (hr)/ Trip
Jan	43	8.6	137	11.1	79	11.7	10	15.5
Feb	29	34.7	67	9.3	52	8.1	21	14.3
Mar	68	29.9	44	8.5	72	11.0	16	11.5
Apr	75	23.2	90	12.2	128	11.9	37	17.7
May	126	27.1	70	21.5	57	23.0	127	14.8
Jun	710	35.0	675	37.8	524	33.3	555	28.1
Jul	665	28.9	654	27.0	481	30.9	570	24.5
Aug	716	32.8	682	18.7	590	26.6	559	18.7
Sep	729	31.7	590	16.2	656	18.7	344	20.2
Oct	643	22.6	734	20.4	774	19.2	499	22.7
Nov	493	21.9	421	20.6	513	17.6	273	26.4
Dec	222	19.4	190	16.0	98	14.2	106	27.2
Totals: 4,519			4,354		4,024		3,117	

Trawlers also target finfish species at certain locations and at certain times of the year. Sheephead (*Archosargus probatocephalus*) kingfishes (*Menticirrhus* sp.) provide additional income (Table 11). Trawl-caught kingfish equaled gillnet landings from 2001 to 2004.

Table 11. Otter Trawl Trips Encountering and Landings of Selected Fishes.

	2001	2002	2003	2004
Kingfish sp. trips/pounds	135/5,693	93/3,871	179/20,190	32/10,121
Sheepshead trips/pounds	117/131,369	85/31,361	32/22,147	30/36,648

In 2004, a regulation was promulgated that prohibits shrimping in the upper portion of Mobile Bay and the Grand Bay portion of Mississippi Sound. This area is to be monitored for its effectiveness in enhancing nursery habitat, improving sea grass bed coverage, and raising harvest value.

While regional marketing campaigns may enhance the financial stability of individual vessels it is projected that fleet size will remain reduced indefinitely. This will continue an existing trend of exodus of captains and crew from the industry.

Sea Turtle Bycatch

Existing trawl data from AMRD's fishery independent monitoring program dates back to the fall of 1980, with several prior short term stations back to 1968. In over 17,000 16-foot trawl samples, AMRD has never caught a sea turtle. Samples were taken year-round and include Alabama's territorial sea and Gulf beach sites. Alabama trawl stations taken since 1985 as part of the Southeast Area Monitoring and Assessment Program (SEAMAP) collected one dead loggerhead in a 40' trawl east of Mobile Ship Channel Markers 1 & 2. Three additional loggerheads were caught in the EEZ and returned to the water alive. These four captures occurred out of 360 SEAMAP tows since 1986.

State or Local Laws and Regulations

Alabama enforces federal legislation or regulations pertaining specifically to the use of TEDs to protect sea turtles. Violation of these laws and regulations is not a significant issue within state waters.

Figure 5 Line drawing of a vessel towing a deployed otter trawl.

